REMARKS

The Examiner has issued an action requiring restriction between three groups of inventions. The inventions identified by the Examiner are:

Group I- Claims 1-15 and 34-35 drawn to an enzyme and method for obtaining an enzyme;

Group II-Claims 16-20, 28-32 and 36 drawn to use of primers and a method of generating a transgenic plant; and

Group III-Claims 21-27 and 33 drawn to an assay device and use of an enzyme in preparation of an assay device.

This requirement to restrict the application is respectfully traversed.

Claims 37-74 are in this application.

Claims 1-36 have been cancelled and new claims 37-74 have been added.

Claims 37-52 define an isolated enzyme product and method for obtaining an enzyme.

Claims 62-74 define primers, use of primers and a method of generating a transgenic plant.

Claims 53-61 define an assay device and use of an enzyme in preparation of an assay device.

The three groups identified by the Examiner all share the technical feature of an NPPase.

Contrary to what is stated by the Examiner on page 2 of the action, the enzyme (PC-1) of Goldfine et al. is completely different from the enzyme NPPase of the

present application. As described in the column 2, lines 38-54 of Goldine, PC-1 is isolated from humans and its size is 115-135 KDa (also exists as a 230-260 dimer) and it comprises 873 amino acids.

NPPase of the invention, which has been characterized in Example 3, has been isolated from rice or barley, its apparent MW measured by gel filtration is 70-270KDa (from which it was deduced that is has a monomeric form of 70 KDa and another homopolymeric form), its apparent MW purified in denaturing gels is 70 KDa. It can be seen in the sequence listing of the present patent application NPPase from rice is comprised of 623 amino acids (SEQ ID NO:21) or of 350 amino acids (SEQ ID NO: 23) if isolated from barley.

Therefore, the amino acid sequence of PC-1 is different from the amino acid sequences of NPPases of the invention. The enzyme disclosed in Goldfine et al. carries out different functions (PC-1 is an insulin receptor tyrosine kinase inhibitor) as compared with the functions carried out by the NNPases of the claimed invention, which are over expressed in different kinds of plants, giving rise to transgenic plants with reduced content of starch and cell-wall polysaccharides, having high resistance to salinity and temperature. This is due to the fact that NPPases isolated from barley and rice share the feature of hydrolysing ADPG and other sugar nucleotides and are highly specific for sugar-nucleotides of adenosine such as the mentioned ADPG.

Moreover, as described in Example 3 of this application, there are other characteristics which differentiate the NPPase of this invention:

- In contrast to the pyrophosphatases of nucleoside diphosphate sugars of bacteria and animals, NPPase hydrolyses bis-PNPP.
- Its activity is not affected by the action of typical inhibitors of phosphodiesterases.

Therefore, as the isolated enzyme is novel and non-obvious, it is applicants position that any use of the enzyme is also novel and non-obvious. Therefore, all of the claims should be examined in this application.

If the Examiner disagrees, applicants elect claims of Group II, namely claims 62-74 drawn to the use of a primer and a transgenic plant.

Respectfully submitted,

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